

REMARKS

An Office Action was mailed on January 5, 2005.

Claims 1-20 are pending, of which claims 1 and 9 are independent claims.

By the foregoing, the specification is amended, all claims are amended, a new claims is presented, and a replacement drawing is provided.

The specification is objected to for including reference to specific claims. Appropriate amendments have been made. No new matter has been added. Accordingly, the Examiner is respectfully requested to withdraw the objection.

The drawings are objected to for failing to show claimed features. With respect to the claimed Venturi effect, this is a natural effect. In claim 19, the limitation "Venturi effect" serves to differentiate the suction system 3 from other types of suction systems. Applicant submits that since Venturi effect is a known natural effect it need not be drawn. The Examiner is respectfully requested to reconsider the objection.

With respect to claim 20, a replacement drawings of drawing Figure 1 is hereby provided correcting this deficiency. The specification has been duly amended. No new matter has been added. Accordingly, the Examiner is respectfully requested to withdraw the objection.

Claims 1-20 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as his invention. In view of the amendment to claim 1, the rejection is now moot. Claim 9 has been amended as suggested by the Examiner. Accordingly, the Examiner is respectfully requested to withdraw the rejection.

Claims 1-12 and 16-20, including independent claims 1 and 9, stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogliari et al. (WO 00/48234) and in view of U.S. Patent 4,707,012 to Takagi. Dependent claims 13-15 stand rejected under 35 U.S.C. § 103(a) as being

unpatentable over applicant's own application WO 00/48234 in view of Takagi and further in view of U.S. Patent 5,188,501 to Tomita.

As now claimed by all independent claims, a tool 7 for handling a wafer 100 comprises a disk 20 having a lower side shaped to be in contact with the wafer 100. The disk 20 covers the wafer 100 in its entirety and has an internally provided suction chamber 24 that is communication with the outside of the disk through suction holes 25. When the wafer is in contact with the lower side of the disk 20 and a suction system 30 is active, the wafer 100 is held by the tool 7. A suction cavity 27 is disposed on the lower side of the disk. Suction holes 25 disposed on the lower side of the disk 20 are open to the suction cavity 27.

Neither Ogliari, Takagi or any combination thereof, teach, disclose, or suggest the now claimed inventive structure. Ogliari teaches a gripping tool 70 that "allows the slices [wafer] to be suitably handled by means of a very limited contact with their edge." Pg. 7, line 30-pg. 8, line 1. As the examiner correctly notes, Ogliari teaches an annular tool 70 with a central opening that does not cover the entire wafer 24, but rather only an edge portion 25. Pg. 15, lines 19 et al.

Furthermore, Ogliari because of its open too structure does not teach, disclose, or suggest a suction cavity that is contact with the wafer and suction holes that connect the suction cavity to the suction chamber as presently claimed.

Takagi teaches a cup-shaped chuck 24 disposed about a direct line suction pipe 26 and further having four holes 50A-D. Col. 2, lines 32 et al. Holes 50A-D permit external air of the environment to flow into the inner space 31 formed between the wafer 28 and chuck 24. Col. 3, lines 5-9.

Therein, Takagi fails to teach, disclose, or suggest the presently claimed suction holes disposed on the lower side of the disk and which are open to the suction cavity and are in communication with the section duct. Takagi teaches that the holes pass air from the outside to the inner space from where the air enters the suction pump. The claimed suction holes act in reverse. These suction holes suck air from the suction cavity trough the suction chamber and suction port to the

suction duct. In other words, Takagi teaches openings that reduce the suction, while the suction holes of the present invention pass the suction effect and thus aid in gripping the wafer rather than reducing the tractive force.

No combination of the cited references teaches, discloses or suggests subject matter to overcome the shortcoming of each reference. Accordingly, the Examiner is respectfully requested to withdraw the rejection.

Notwithstanding the above, the present invention seeks to overcome the deficiencies known in the art. Therein, applicants recognized from their prior invention, cited herein as Ogliari, that “closing the large central holes” was disadvantageous because suction would cause deformation to the wafer. The Examiner cites Takagi for the proposition that the “decompressive capacity” of vacuum pumps is “substantially” reduced when the air from the environment is sucked into the vacuum pump. However, both Takagi and Ogliari fail to appreciate the present invention. In the present claimed invention, suction holes which are in fluid communication with the suction system are disposed on the lower side of the disk so as to provide suction. This suction as noted above is not taught, disclosed, or suggested by Takagi and more importantly is indirectly oriented to the wafer rather than, as Takagi teaches using pipe 26, directly oriented onto the wafer. It is this orientation and its effect that is clearly not appreciated by Takagi. In fact, Takagi teaches that correctly spaced and sized chucks 24 and pipes 26 are needed so as to prevent excessive external stresses. Col. 3, lines 16-28. Accordingly, the Examiner is respectfully requested to withdraw the rejection.

With respect to Tomita, Applicant respectfully suggests that the reference does not teach, disclose, or suggest the presently claimed invention.

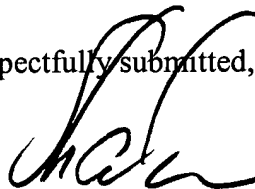
All dependent claims are allowable for at least the same reasons as the independent claim from which they depend.

Applicant believes that all issues of substance have been addressed in this response. Thus, passage of the case to allowance is respectfully requested. Should the Examiner have any

requests, questions or suggestions, the Examiner is invited to contact Applicant's attorney at the number listed below.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,



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AMENDMENT TO THE DRAWING

Enclosed herewith are replacement drawing Fig. 1